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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,150	07/13/2004	Syuji Matsuda	2004_1091A	5201
513 7590 05/04/2007 WENDEROTH, LIND & PONACK, L.L.P. 2033 K STREET N. W. SUITE 800 WASHINGTON, DC 20006-1021			EXAMINER TORRES, JOSEPH D	
			ART UNIT 2112	PAPER NUMBER
			MAIL DATE 05/04/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/501,150	Applicant(s) MATSUDA ET AL.	
	Examiner Joseph D. Torres	Art Unit 2112	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07/13/2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>See Continuation Sheet</u> | 6) <input type="checkbox"/> Other: _____ |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :11/01/2006, 09/20/2004,07/13/2004 .

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse in the reply filed on 03/26/2007 is acknowledged.

Information Disclosure Statement

2. The listing of references in the Search Report is not considered to be an information disclosure statement (IDS) complying with 37 CFR 1.98. 37 CFR 1.98(a)(2) requires a legible copy of: (1) each foreign patent; (2) each publication or that portion which caused it to be listed; (3) for each cited pending U.S. application, the application specification including claims, and any drawing of the application, or that portion of the application which caused it to be listed including any claims directed to that portion, unless the cited pending U.S. application is stored in the Image File Wrapper (IFW) system; and (4) all other information, or that portion which caused it to be listed. In addition, each IDS must include a list of all patents, publications, applications, or other information submitted for consideration by the Office (see 37 CFR 1.98(a)(1) and (b)), and MPEP § 609.04(a), subsection I. states, "the list ... must be submitted on a separate paper." Therefore, the references cited in the Search Report have not been considered. Applicant is advised that the date of submission of any item of information or any missing element(s) will be the date of submission for purposes of determining

compliance with the requirements based on the time of filing the IDS, including all "statement" requirements of 37 CFR 1.97(e). See MPEP § 609.05(a).

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: S101, S102 and S121. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract

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on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. The abstract of the disclosure is objected to because the abstract exceed 150 words. Correction is required. See MPEP § 608.01(b).

Claim Objections

5. Claims 18, 23, 28 and 33 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 18, 23, 28 and 33 recite elements of a data structure, but do not recite any step for a method or element of an apparatus that further limits respective parent claims.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 17-40 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter

which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1 recites new matter, "An error correction method" ... "comprising: a judgment step of judging whether or not a first piece of data, which is one of a plurality of pieces of data elements of the error correction target code, and a second piece of data, which is one of a plurality of pieces of data of a previous error correction code line, were located between the same pieces of sub data before being deinterleaved".

The only error correction method taught in the Applicant's specification is the method of Figure 5. The method in Figure 5 includes only the following judgment steps: S105, S109, S111, S113, S115 and S116, none of which is a step for "judging whether or not a first piece of data, which is one of a plurality of pieces of data elements of the error correction target code, and a second piece of data, which is one of a plurality of pieces of data of a previous error correction code line, were located between the same pieces of sub data before being deinterleaved".

Claims 22, 27 and 32 recite substantially the same previously recited language as in claim 17, above.

Claim 20 recites new matter, "wherein said judgment step judges that the first piece of data and the second piece of data do not exist between the same pieces of sub data when said first piece of data is directly subsequent to a piece of sub data or a piece of sync data in a data recording order".

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The only error correction method taught in the Applicant's specification is the method of Figure 5. The method in Figure 5 includes only the following judgment steps: S105, S109, S111, S113, S115 and S116, none of which is a step for a "judgment step judges that the first piece of data and the second piece of data do not exist between the same pieces of sub data when said first piece of data is directly subsequent to a piece of sub data or a piece of sync data in a data recording order".

Claims 25, 30 and 35 recite substantially the same previously recited language as in claim 20, above.

Claims 19, 24, 29, 34 and 37-40 recite new matter, "wherein the method sync data is inserted between data at predetermined intervals to configure the erasure position information of said first piece of data". The only error correction method taught in the Applicant's specification is the method of Figure 5. Nowhere does the method of Figure 5 teach the following step: "wherein the method sync data is inserted between data at predetermined intervals to configure the erasure position information of said first piece of data".

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 17-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claim 1 recites, "a plurality of pieces of sub-data", which is indefinite since sub-data can already be considered pieces of a larger data and it is not clear whether "pieces is used to emphasize this fact or whether the sub-data is further divided into smaller pieces.

Claims 22, 27 and 32 recite substantially the same previously recited language as in claim 17, above.

Claim 18, 23, 27 and 33 recite similar language as in claim 17 and suffer ferom the same problems as claim 17.

The term "same pieces of data" in claim 17 is a relative term which renders the claim indefinite. The term "same pieces of data" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is not clear what same refers to, i.e., "same" refers to pieces data having the same values.

Claims 22, 27 and 32 recite substantially the same previously recited language as in claim 17, above.

The term "same as erasure position information" in claim 17 is a relative term which renders the claim indefinite. The term "same as erasure position information" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is not clear what same refers to, i.e., "same" refers to errors belonging to the same burst.

Claims 22, 27 and 32 recite substantially the same previously recited language as in claim 17, above.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 17-20, 22-25, 27-30, 32-35 and 37-40 are rejected under 35

U.S.C. 102(e) as being anticipated by Marchant; Alan B. (US 6631492 B2).

35 U.S.C. 102(e) rejection of claims 17, 22, 27 and 32.

Marchant teaches a judgment step of judging whether or not a first piece of data, which is one of a plurality of pieces of data elements of the error correction target code, and a second piece of data, which is one of a plurality of pieces of data of a previous error correction code line, were located between the same pieces of sub data before being deinterleaved (col. 6, lines 28-56 in Marchant teach judging whether or not a first piece of data in row 4 in Figure 7, which is one of a plurality of pieces of data elements in row 4 of the error correction target code, and a second piece of data in row 2, which is one of a plurality of pieces of data in row 4 of a previous error correction code line, were

located between the same pieces of sub data 48a and 48b before being deinterleaved); a configuration step of configuring erasure position information of said first piece of data belonging to the error correction target code line to be the same as erasure position information of said second piece of data belonging to the previous error correction code line when said judgment step judges that the first piece of data and the second piece of data are both located between the same pieces of sub data (col. 6, lines 28-56 in Marchant teach that symbols in a scratch field are configured/flagged with erasure information for a scratch so that they are configured/flagged with erasure position information for the same scratch); and an error correction step of performing error correction on the error correction target code line (col. 6, lines 28-56 in Marchant).

Note: col. 6, lines 28-56 in Marchant teach that scratch detection is performed prior to ECC. Col. 4, lines 41-60 in Marchant teach cross interleaved codes such as in U.S. Pat. No. 5,841,794 and Figure 3B teaches that de-interleaving for cross interleaved codes takes place after inner code decoding, that is, after ECC correction starts, hence; Marchant teaches an embodiment where scratch detection takes place before de-interleaving on read Cross-interleaved ECC encoded data.

As per claim 22, only data in the scratch region of Figure 7 are subjected to erasure error detection. Other ECC codewords not lying in the scratch region are ECC decoded.

As per claim 27, claim 27 recites an apparatus with the same limitations as in claim 17.

As per claim 32, claim 32 recites an apparatus with the same limitations as in claim 22.

35 U.S.C. 102(e) rejection of claims 18, 23, 28 and 33.

Col. 6, lines 28-56 in Marchant teach judging whether or not a first piece of data in row 4 in Figure 7, which is one of a plurality of pieces of data elements in row 4 of the error correction target code, and a second piece of data in row 2, which is one of a plurality of pieces of data in row 4 of a previous error correction code line, were located between the plural pieces of sub data 48a and 48b before being deinterleaved.

35 U.S.C. 102(e) rejection of claims 19, 24, 29 and 34.

Sub data 48a and 48b in Figure 7 of Marchant is sync data for configuring/flagging erasures.

35 U.S.C. 102(e) rejection of claims 20, 25, 30 and 35.

If first data is outside of sub data 48a and 48b in Figure 7 of Marchant.

35 U.S.C. 102(e) rejection of claims 37-40.

Sub data 48a and 48b in Figure 7 of Marchant is sync data for configuring/flagging erasures.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 21, 26, 31 and 36 rejected under 35 U.S.C. 103(a) as being unpatentable over Marchant; Alan B. (US 6631492 B2) in view of Eachus; Joseph J. (US 3685016 A).

35 U.S.C. 103(a) rejection of claims 21, 26, 31 and 36.

Marchant substantially teaches the claimed invention described in claims 17-20, 22-25, 27-30 and 32-35 (as rejected above).

However Marchant does not explicitly teach the specific use of avoiding error correction when error correction capabilities are exceeded.

Eachus, in an analogous art, teaches use of avoiding error correction when error correction capabilities are exceeded (col. 13, lines 1-10 in Eachus).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Marchant with the teachings of Eachus by including use of avoiding error correction when error correction capabilities are exceeded. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that

use of avoiding error correction when error correction capabilities are exceeded would have provided means for avoiding meaningless calculations (col. 13, lines 1-10 in Eachus).

Conclusion

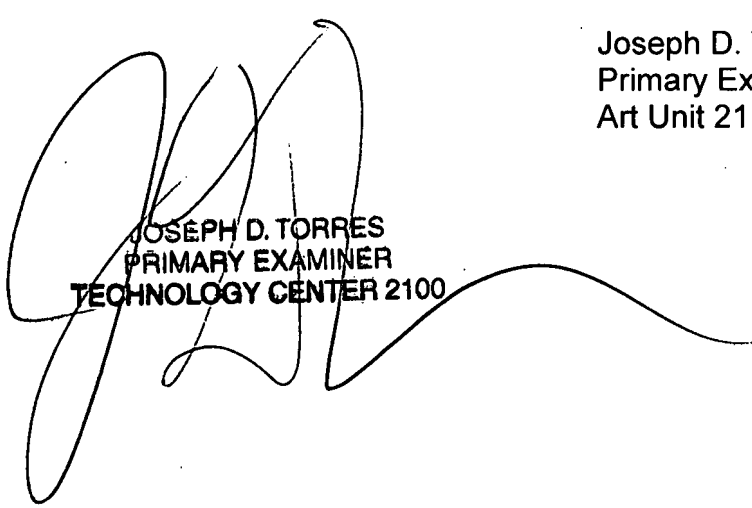
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Torres whose telephone number is (571) 272-3829. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jacques Louis-Jacques can be reached on (571) 272-6962. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Joseph D. Torres, PhD
Primary Examiner
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